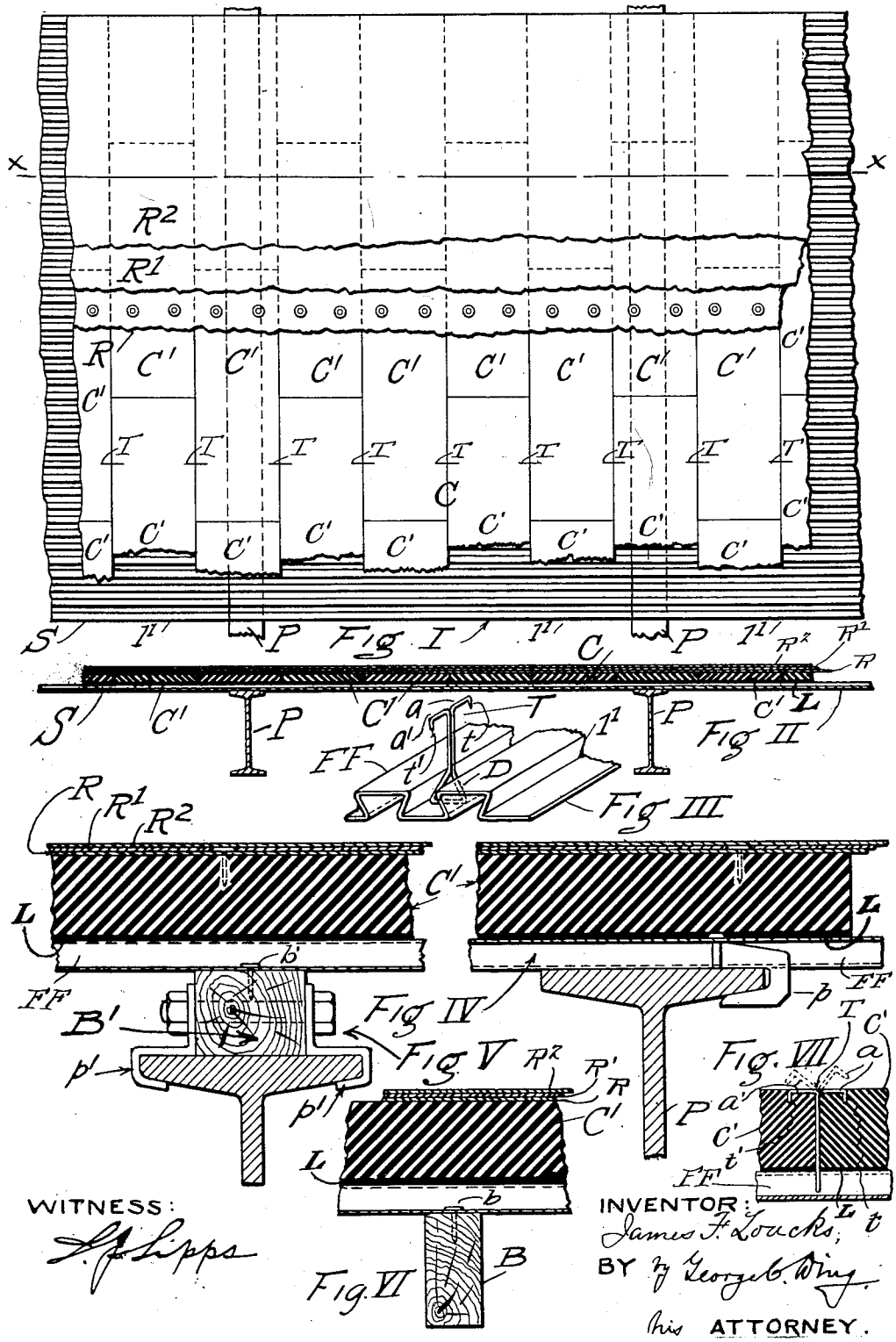
J. F. LOUCKS.

ROOFING AND SIMILAR CONSTRUCTION.

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WITNESS:

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ROOFING AND SIMILAR CONSTRUCTION.

1,403,510. Specification of Letters Patent. Patented Jan. 17, 1922.

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To all whom it may concern:

Be it known that I, JAMES F. LOUCKS, a citizen of the United States, residing in the city of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Roofing and Similar Constructions, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, forming a part of these specifications, wherein similar parts are designated by the same letters in each case.

Briefly stated, the general purpose of the invention is to provide a method of building up the constructions referred to in their places on the frames or structures for which they are designed, whereby, by reason of the nature of the materials used, their proportionate qualities, and relations one with the other, the finished result, with other qualities, will possess a degree of durability, lightness and insulative and shelter properties, not reached by other constructions of the kind.

In the drawings Figure I is a broken plan view of a portion of a roof, when made according to the formula hereinafter set forth.

Figure II is a vertical sectional view through the line x x of Figure I.

Figure III is a perspective view of a portion of the so-called ferroinclave used in the roof indicated in Figure I, showing a variety of clamps adapted for use with the same.

Figures IV, V and VI are enlarged vertical cross sectional views, showing methods of fastening the roof to purlins, or directly to supporting beams.

Figure VII is a vertical section of portions of two contiguous cork sheets, when the variety of clamp illustrated in Figure III is pressed down into engagement with the same, the dotted lines indicating the position of the arms and prongs of the clamp before such operation.

My said construction, when applied to roofs, is built up by first laying upon the spaces to be covered by the same, a sheathing, or foundation member S, made up of contiguous series of so-called ferroinclave sheets F F, firmly fastened by bolts, clips or other means, to and across the purlins, or other frame-parts, of the structure to be roofed. As is well known, said ferroinclave is a species of corrugated sheet metal characterized by corrugations which are claviform or dovetailed in cross-section. This variety of corrugated material is peculiarly adapted to roofs, because by reason of the fact that the weight of ferroinclave sheets is small in comparison with their rigidity, and such sheets can be overlapped along their sides and telescoped and interlocked at their ends, the resulting sheathing will be seamless, and of exceptional lightness and strength. For a more detailed description of this form of sheet metal, reference is made to United States Letters Patents, issued, respectively, December 17th, 1901, under Number 689281, and October 17th, 1905, under Number 802263.

Except as specifically claimed, any other form of corrugated metal than ferroinclave, may be used for said sheathing, it being obvious that the cork slabs, by reason of their rigidity, will still not occupy and fill the open corrugations, and will only contact with the top surface of the corrugations that are closed with relation to the superimposed stratum. The resulting roof formation, therefore, whatever the form of the corrugations, will nevertheless gain a maximum of lightness and strength, without any dispensible use of any of the constituent material and parts.

If it is desired that the underside of the finished roof shall be painted, this can be conveniently accomplished, by painting that which will be the lower face, or surface, of the sheets for the purpose, before the sheets are assembled in place.

Said sheets F F should be fastened to the purlins, or the beams of the roof-frame, by any appropriate means. In Figures V and VI, this is done by bolting them directly to such beams B and B′ by bolts b and b', and, in Figure IV, by fastening them directly to the purlins P, by clips p. In Figure V, the sheets are secured to an intermediate beam B^1, by the bolts b' and clips p^1 p^1, which themselves engage the purlins P, as indicated in the figure.

After the sheets F F, are in place, the side laps or flanges l^1 l^1 of the contiguous plates, or sheets, should be bound together by crossties, or other means, and the entire upper surface of the sheathing S, thus constituted, be given a coat of asphalt paint.

The sheathing S is now ready for the second step in the process, which consists in

fixedly applying to the upper surface of the same, a continuous course or stratum of cork, or cork composite C, to form the chief and central constituent of the construction.

For this purpose I use preformed cork-board slabs, or blocks C′ C′, at least 1½ inches thick, and of the standard size of 12 by 36 inches. This article, as procurable in commerce, is a composite of raw cork, which has been ground, or granulated, and thereafter subjected to steam and pressure, or otherwise treated, until all original resinous matter, or injected matter with which it may be purposely associated, is thoroughly diffused, and the whole has cohered into and become a light, firm, inexpansible mastic, largely impervious to heat, moisture or sound.

It is to be observed that cork from live trees, has a livelier resin than that from dead trees, and, on that account may often be brought to the desired mastic state without the addition of other elements; cork from dead trees, however, will frequently have to be reinforced by an infusion of asphalt, or other ingredients in the process.

The slabs C, are superimposed in close juxtaposition upon the top surfaces of the upwardly projecting corrugations of the sheathing S, across and bridging over the open tongues or grooves of the depending corrugations between, until said sheathing is entirely covered by the same. As each slab is thus laid in place, its lower face is first dipped in hot asphalt, or similar binding material, and the slab is then pressed into place with the result that when the stratum is at last made up and finished, it will become firmly united to the sheathing S by means of said asphaltic medium, as indicated by L in the figures.

During the above operation, any clip or clamp device that is to be employed for further securing the covering, or stratum C, to the sheathing S, will have to be inserted as, or before, each component thereof, C′, is laid in place.

In Figure III, one form of such a device is shown for use with the ferroinclave foundation or sheathing just described. As appears, it is composed of a standard T, with right and left arms a, a^1, across the top provided with downwardly extending prongs t, t^1. The standard widens at its lower end D, in a plane at right angles to the plane of said arms, to conform to the interior configuration of the dovetailed cross-section, in order that, when inserted in the end of a given corrugation and turned to bring the prongs in position to be pressed down into engagement with adjoining sheets C′, C′, the enlarged base portion D of the standard T, will be firmly anchored by the inwardly converging sides of the section, against any uplifting movement whatever. The standard T should be slightly shorter than the distance from the bottom of the dovetailed section in which it is stationed, to the top of the sheet C′, which it is to engage by said prongs when the sheet is in place.

The covering C being duly superimposed upon the sheathing S, as above described, a protective layer of asbestos, or asphalt-roofing felt, or of wool felt, should next be applied to said covering. This may be done in the usual manner, by the use of any suitable glutinous medium to bind the layer to said covering, observing, of course, that if wool felt is selected for such layer, some other medium than asphalt must be employed for the purpose, just as, if the upper surface of the sheathing S is painted with coal-tar paint for instance, some other adhesive agent than asphalt must be used in joining the cork-board covering C to said sheathing. Additional layers may be applied to this first layer, if thought desirable. In the figures, said layers are three in number, designated, respectively, by R, R^1, and R^2.

Although I have specifically mentioned several components as entering into and comprising my invention, it is manifest that, except as expressly limited to such components in particular claims herewith, most of them are subordinate to the invention as broadly construed, and may be superseded by other forms or elements, without a departure from the same. In this sense, any other form of corrugation than that shown, may be used for the sheathing S, or plain sheet metal, or wood, may take the place of ferroinclave. In the same sense, also, the minor ingredients of the cork mastic mentioned, or of the protective layers, or binding mediums and methods pointed out, may be varied, so that the constant elements of a cork composite, as generally indicated, in close combination with a light, durable base, be retained for the uses and purposes of a roof or other construction, to which the same equally pertains.

What I claim and wish to protect by Letters Patent is:

1. In combination with the frame-work of a roof, and similar constructions, a corrugated metallic sheathing member, and a stratum member made up of contiguous courses preformed of cork-board blocks, superimposed upon, and adhesively connected to the top surfaces of the upwardly extending corrugations of said sheathing member, substantially as shown and described.

2. In combination with a frame-work of roofs, and similar constructions, a metallic sheathing member having upwardly extending dovetailed corrugations thereon, a stratum member made up of contiguous

courses of cork board superimposed upon and across the top surfaces of said corrugations, and adhesively connected thereto, substantially as shown and described.

3. In combination with the frame-work of roofs, and similar constructions, a dovetailed sheathing member, a stratum member made up of contiguous courses of cork board superimposed on and across the top surfaces of the upwardly extending corrugations of said sheathing member, and means for binding said contiguous courses together and to said sheathing member comprising clamping devices between and in engagement, at their upper ends, with said courses, and, having their lower ends connected to the corrugations below.

4. In combination with the frame-work of a roof, a dovetailed sheathing member, a stratum member made up of contiguous courses of cork-board superimposed upon and across the top surfaces of the upwardly extending corrugations in said sheathing members, and clamping members between and engaging said contiguous courses and extending within and cross-wise of the depending corrugations below, substantially as shown and described.

5. In combination with the frame work of roofs and similar structures, a ferroinclave sheathing member, and a stratum of preformed corkboard blocks upon and adhesively united to the top surfaces of the upwardly extending corrugations in said member, and bridging over and across the depending corrugations therein, substantially as shown and described.

6. In combination with the frame work of roofs and similar structures, a ferroinclave sheathing member, a stratum of preformed cork board blocks upon and adhesively united to the top surfaces of the upwardly extending corrugations in said member, and bridging over and across the depending corrugations thereon, and a covering of fibrous felting similarly united to the top surface of said stratum, substantially as shown and described.

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In presence of—
L. P. LIPPS,
I. H. WENGER.